Amendment to the Claims:

Claims 10-18, 22-24 and 30-34 are pending. Claims 16-18 and 32-34 have been amended and claims 1-9, 19-21 and 25-29 have been cancelled.

Listing of Claims:

Claims 1-9 (Cancelled)

10. (Original) A method of applying an inverse three-dimensional discrete wavelet transformation (3D IDWT) to a plurality of transformed video image sub-blocks, said sub-blocks comprising transformed frames, and said frames comprising rows and columns, said method comprising:

inverse transforming the sub-blocks of transformed video images by:

(1) applying a bit-based conditional decoding to the embedded zero tree encoded DWT coefficients of the block to obtain a DWT coefficient matrix;

(2) up-sampling respective sub-blocks of the DWT coefficient matrix by row, column and frame;

(3) filtering and combining one or more respective pairs of up-sampled sub-blocks to produce an up-sampled sub-block corresponding to each respective pair;

(4) reapplying (3) to any produced up-sampled sub-block pairs until one up-sampled sub-block remains;

(5) multiplying the one remaining up-sampled sub-block by eight to produce a block at the next higher resolution.

11. (Original) The method of claim 10, wherein the respective sub-blocks of the DWT matrix comprise eight sub-blocks.

12. (Original) The method of claim 10, wherein filtering and combining one or more respective pairs of up-sampled sub-blocks comprises applying an inverse low-pass filter to one up-sampled sub-block of the pair and applying a high-pass filter to the other up-sampled sub-block of the pair.

13. (Original) The method of claim 10, wherein up-sampling comprises inserting alternate frames, alternate columns and alternate rows.

14. (Original) An integrated circuit comprising:

an architecture to apply an inverse three-dimensional discrete wavelet transformation (3D IDWT) to a plurality of transformed video image sub-blocks, said sub-blocks comprising transformed frames, and said frames comprising rows and columns;

said architecture adapted to inverse transforming the sub-blocks of transformed video images by:

(a) applying a bit-based conditional decoding to the embedded zero tree encoded DWT coefficients of the block to obtain a DWT coefficient matrix; (b) up-sampling respective sub-blocks of the DWT coefficient matrix by row, column and frame; (c) filtering and combining one or more respective pairs of up-sampled sub-blocks to produce an up-sampled sub-block corresponding to each respective pair; (d) reapplying (c) to any produced up-sampled sub-block pairs until one up-sampled sub-block remains; and (e) multiplying the one remaining up-sampled sub-block by eight to produce a block at the next higher resolution.

15. (Original) The integrated circuit of claim 14, wherein said architecture comprises at least one of the following: hardware, software, firmware, and any combination thereof.

16. (Currently Amended) The integrated circuit of claim ~~15~~ 14, wherein the respective sub-blocks of the DWT coefficient matrix comprise eight sub-blocks.

17. (Currently Amended) The integrated circuit of claim ~~15~~14, wherein filtering and combining one or more respective pairs of up-sampled sub-blocks comprises applying an inverse low-pass filter to one up-sampled sub-block of the pair and applying a high-pass filter to the other up-sampled sub-block of the pair.

18. (Currently Amended) The integrated circuit of claim ~~15~~ 14, wherein up-sampling comprises inserting alternate frames, alternate columns and alternate rows.

Claims 19-21 (Cancelled)

22. (Original) An article comprising: a storage medium having stored thereon instructions, said instructions, when executed by a computing platform, resulting in applying an inverse three-dimensional discrete wavelet transformation (3D IDWT) to a plurality of transformed video image sub-blocks, said sub-blocks comprising transformed frames, and said frames comprising rows and columns, by:

(1) applying a bit-based conditional decoding to the embedded zero tree encoded DWT coefficients of the block to obtain a DWT coefficient matrix;

(2) up-sampling respective sub-blocks of the DWT coefficient matrix by row, column and frame;

(3) filtering and combining one or more respective pairs of up-sampled sub-blocks to produce an up-sampled sub-block corresponding to each respective pair;

(4) reapplying (3) to any produced up-sampled sub-block pairs until one up-sampled sub-block remains; and

(5) multiplying the one remaining up-sampled sub-block by eight to produce a block at the next higher resolution.

23. (Original) The article of claim 22, wherein the respective sub-blocks of the DWT coefficient matrix comprise eight sub-blocks.

24. (Original) The article of claim 22, wherein filtering and combining one or more respective pairs of up-sampled sub-blocks comprises applying an inverse low-pass filter to one up-sampled sub-block of the pair and applying a high-pass filter to the other up-sampled sub-block of the pair.

Claims 25-29 (Cancelled)

30. (Original) A system comprising:

an integrated circuit, a memory, and a bus coupling said integrated circuit and memory;

wherein said integrated circuit comprises an architecture to apply an inverse three-dimensional discrete wavelet transformation (3D IDWT) to a plurality of transformed video image sub-blocks, said sub-blocks comprising transformed frames, and said frames comprising rows and columns;

said architecture adapted to inverse transforming the sub-blocks of transformed video images by:

(a) applying a bit-based conditional decoding to the embedded zero tree encoded DWT coefficients of the block to obtain a DWT coefficient matrix; (b) up-sampling respective sub-blocks of the DWT coefficient matrix by row, column and frame; (c) filtering and combining one

or more respective pairs of up-sampled sub-blocks to produce an up-sampled sub-block corresponding to each respective pair; (d) reapplying (c) to any produced up-sampled sub-block pairs until one up-sampled sub-block remains; and (e) multiplying the one remaining up-sampled sub-block by eight to produce a block at the next higher resolution.

14 13
31. (Original) The system of claim 30, wherein said architecture comprises at least one of the following: hardware, software, firmware, and any combination thereof.

15 13
32. (Currently Amended) The system of claim ~~31~~ 30, wherein the respective sub-blocks of the DWT coefficient matrix comprise eight sub-blocks.

16 13
33. (Currently Amended) The system of claim ~~31~~ 30, wherein filtering and combining one or more respective pairs of up-sampled sub-blocks comprises applying an inverse low-pass filter to one up-sampled sub-block of the pair and applying a high-pass filter to the other up-sampled sub-block of the pair.

17 13
34. (Currently Amended) The system of claim ~~31~~ 30, wherein up-sampling comprises inserting alternate frames, alternate columns and alternate rows.

Amendments to the Abstract

Please replace the abstract with the following amended abstract:

Embodiments of a three-dimensional wavelet transform are described. An inverse three-dimensional discrete wavelet transformation (IDWT) is applied to a plurality of transformed video image sub-blocks. The sub-blocks of transformed video images are inverse transformed by applying a bit-based conditional decoding to the embedded zero tree encoded DWT coefficients of the block to obtain a DWT coefficient matrix, up-sampling respective sub-blocks of the DWT coefficient matrix by row, column and frame, filtering and combining one or more respective pairs of up-sampled sub-blocks to produce an up-sampled sub-block corresponding to each respective pair, reapplying the filtering and combining step to any produced up-sampled sub-block pairs until one up-sampled sub-block remains and multiplying the one remaining up-sampled sub-block by eight to produce a block at the next higher resolution.

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ABSTRACT

Embodiments of a three-dimensional wavelet transform are described. An inverse three-dimensional discrete wavelet transformation (IDWT) is applied to a plurality of transformed video image sub-blocks. The sub-blocks of transformed video images are inverse transformed by applying a bit-based conditional decoding to the embedded zero tree encoded DWT coefficients of the block to obtain a DWT coefficient matrix, up-sampling respective sub-blocks of the DWT coefficient matrix by row, column and frame, filtering and combining one or more respective pairs of up-sampled sub-blocks to produce an up-sampled sub-block corresponding to each respective pair, reapplying the filtering and combining step to any produced up-sampled sub-block pairs until one up-sampled sub-block remains and multiplying the one remaining up-sampled sub-block by eight to produce a block at the next higher resolution.